

IN THE CLAIMS:

Claims 1-26 (canceled)

27 (currently amended): External electrodes An external electrode for a piezoceramic multilayer actuator, comprising actuators, composed of a layer of a basic metallization applied to the a ceramic material on of the a surface of a the actuator, a reinforcing layer joined to said basic to which metallization there is joined by means of a joining layer a reinforcing layer to which a connecting wire is soldered, wherein the layer of basic metallization is structured by discontinuities or recesses.

28 (currently amended): External electrodes An external electrode according to Claim 27, wherein the structure of the basic metallization is composed of a printed pattern of a suitable termination paste, which printed pattern has been produced by means of a printing method.

29 (currently amended): External electrodes An external electrode according to Claim 27, wherein the structure of the basic metallization is formed by a mechanical, chemical or electrochemical removal in a layer of the basic metallization applied over the entire area.

30 (currently amended): External electrodes An external electrode according to Claim 28, wherein the basic metallization is composed of a suitable termination paste that has the composition Ag_xPd_y, where x + y = 1 and 1 > x > 0 1 > x > 0, but preferably 1 > x > 0.7.

31 (currently amended): External electrodes An external electrode according to Claim 27, wherein the structure of the basic metallization is formed by a porous electrochemical deposition of a suitable metallic material.

32 (currently amended): External electrodes An external electrode according to Claim 31, wherein the metallic material is nickel.

33 (currently amended): External electrodes An external electrode according to Claim 27, wherein the structure of the basic metallization is composed of areas disposed over the surface of the actuator and in that the areas are at least large enough for respective adjacent internal electrodes to be joined together by at least one area.

34 (currently amended): External electrodes An external electrode according to Claim 27, wherein the structure of the basic metallization is composed of dots, in that the diameter of the dots is equal to 0.05 to 5 times the thickness of the ceramic layers of the actuator, in that the minimum distance between the dots is likewise equal to 0.5 to 5 times the thickness of the ceramic layers of the actuator, and in that a straight line extending through the dots encloses an angle with respect to the path of the internal electrodes that is approximately between 10 degrees and 80 degrees, preferably between 15 degrees and 40 degrees.

35 (currently amended): External electrodes An external electrode according to Claim 34, wherein the diameter of and the spacing between the dots are equal to two to three times the thickness of the ceramic layer of the actuator.

36 (currently amended): External electrodes An external electrode according to Claim 27, wherein the structure of the basic metallization is composed of parallel lines, in that the width of the lines is equal to 0.5 to 5 times the thickness of the ceramic layers of the actuator, in that the minimum distance between the lines is likewise equal to 0.5 to 5 times the thickness of the ceramic layers of the actuator, and in that the lines enclose an angle with respect to the path of the internal electrodes that is approximately between 10 to 80 degrees, preferably between 15 degrees to 40 degrees.

37 (currently amended): External electrodes An external electrode according to Claim 36, wherein the width of and the spacing between the lines are equal to 2 to 3 times the thickness of the ceramic layers of the actuator.

38 (currently amended): External electrodes An external electrode according to Claim 27, wherein the structure of the basic metallization is composed of lines disposed in grid-type manner, in that the width of the lines is equal to 0.5 to 5 times the thickness of the ceramic layers of the actuator, in that the minimum distance between the lines is likewise equal to 0.5 to 5 times the thickness of the ceramic layers of the actuator, and in that the lines of the grid are at a random angle with respect to one another and to the path of the internal electrodes.

39 (currently amended): External electrodes An external electrode according to Claim 38, 27, wherein said basic metallization has no cracks therein the width of and the spacing between the lines are equal to 2 to 3 times the thickness of the ceramic layers of the actuator.

40 (currently amended): External electrodes An external electrode according to Claim 39, wherein the joining layer between the metallization and reinforcing layer is composed of a solder that contains at least one of the metals Sn, Ag, Cu, Pb, Au, In, Ga.

41 (currently amended): External electrodes An external electrode according to Claim 40, wherein the solder is a tin-containing material, preferably SnAg₄ or SnCu_{0.7}.

42 (currently amended): External electrodes An external electrode according to Claim 27, wherein the joining layer between basic metallization and reinforcing layer is an electrically conductive adhesive.

43 (currently amended): A method Method for producing external electrodes according to Claim 27, wherein the layer of the basic metallization is structured by discontinuities and recesses.

44 (currently amended): Method A method according to Claim 43, wherein the structure of the basic metallization is produced as a printed pattern by means of a printing method using a suitable termination paste.

45 (currently amended): Method A method according to Claim 44, wherein the structure of the basic metallization is formed by a mechanical, chemical or electrochemical removal in a layer of the basic metallization applied over the entire area.

46 (currently amended): A method Method according to Claim 43, wherein the basic metallization is produced from a suitable termination paste that has the composition Ag_xPd_y , where $x + y = 1$ and $1 > x > 0 \frac{1}{4} > x > 0$, but preferably $1 > x > 0.7$.

47 (currently amended): A method Method according to Claim 43, wherein the structure of the basic metallization is formed by a porous electrochemical deposition of a suitable metallic material.

48 (currently amended): Method A method according to Claim 47, wherein nickel is used as metallic material.

49 (currently amended): Method A method according to Claim 43, wherein the structure of the basic metallization is formed from areas distributed over the surface of the actuator and in that areas are produced that are at least large enough for respectively adjacent internal electrodes to be jointed together by at least one area.

50 (currently amended): Method A method according to Claim 27, wherein the reinforcing layer is soldered onto the basic metallization, and in that the solder contains at least one of the metals Sn, Ag, Cu, Pb, Au, In, Ga.

51 (currently amended): Method A method according to Claim 50, wherein the solder is a tin-containing material, preferably SnAG₄ or SnCu_{0.7}.

52 (currently amended): Method A method according to Claim 50, wherein that metal from the solder is alloyed into the internal electrodes by the discontinuities in the structure of the basic metallization, and in that the ceramic material is weakened at these points, as a result of which preferred points are formed for possible crack formation and the crack path.